AMENDMENTS TO THE SPECIFICATION

The following amendments are made with reference to the paragraph numbering of US Patent Application Publication 2006/0147897, which is the publication of the 10/537,116 application.

Text to be deleted is indicated by ~~strikethrough~~, text to be inserted is indicated by underline.

Kindly amend paragraph [0013], as follows:

[0013] Depending on which part of the body is observed, compromised blood vessel condition causes different symptoms, which can then be used for diagnosing the relevant illness or illnesses, such as arteriosclerosis or arteriothrombosis. At this point, treatment is started for the purpose of impeding further degeneration. In many cases, however, the symptoms which enable the diagnosis to be made only when the vascular alterations are already progressed. In most cases, they are themselves pathological and often irreversible, such as in peripheral arterial occlusive disease, coronary artery disease, cardio- or cerebro-vascular disease in general, stroke, ~~infarctuation~~ infarction, and the like. It is thus desirable to detect such problems as early as possible, before irreversible damage has occurred. Whereas ideally it would be desirable to have access to the whole vascular system, practically it is generally sufficient to sample only one, or a few representative locations, since the character of such vascular illnesses is in most cases global, rather than local. This has been shown, for instance, in the publication by Dormandy, et al., entitled "Lower-extremity arteriosclerosis as a reflection of a systemic process: implications for concomitant coronary and carotid disease", published in Semin. Vasc. Surg., pp. 118-122, Vol. 12(2), June 1999. Non-invasiveness of the detection method is highly desirable, both for patient convenience and safety. Invasive monitoring of blood vessels is a delicate procedure, since mechanical manipulation of the interior of blood vessels can result in serious and even fatal consequences, even if the blood vessels are not yet heavily compromised. This is described in the article entitled "Fatal lipid embolism following intra-arterial angiography at an early stage of arteriosclerosis" by Kutzner et al., published in British Journal of Radiology, Vol. 73 (874), pp. 1108-1111, October 2000. Furthermore, the procedure requires a high level of sterility.

Kindly amend paragraph [0014], as follows:

[0014] Offering simple optical access to its retinal blood vessels, the eye is a window, through which it is possible to non-invasively sample the state of the vasculature. From this sample, conclusions can be drawn about the state of the vasculature in general, and specifically about the coronary ~~vascularature~~ vasculature. Examples of the evidence for links between the vascular condition in the retina, heart and brain are given in the article "Retinal Microvascular Abnormalities and Incident Stroke: the Atherosclerosis Risk in Communities Study" by Wong T. Y., et al., Lancet, 358(9288) pages: 1134-40 (2001); in the article "Retinal arteriolar narrowing and risk of coronary heart disease in men and women. The Atherosclerosis Risk in Communities Study" by T. Y. Wong et al., JAMA; 287(9), pages: 1153-1159, 2002, and in the article "White matter lesions, retinopathy, and incident clinical stroke" by T. Y. Wong et al., JAMA; 288(1); pages 67-74, (2002)

Kindly amend paragraph [0032], as follows:

[0032] In this above described method, the change of the first blood pressure to the second blood pressure may preferably be caused by either drugs administered to the subject or by exercise. ~~Alterantively~~ Alternatively and preferably, the change of the first blood pressure to the second blood pressure may be a result of the subject's heartbeat. In such a case, the method also preferably comprises the additional step of synchronizing the optically imaging steps to the subject's heartbeat. Such synchronizing is preferably performed by monitoring at least one of the subject's heartbeat cycle and blood pressure, and using the monitoring to control the timing of the optical imaging.

Kindly amend paragraph [0035], as follows:

[0035] In accordance with yet more preferred embodiments of the present invention, there is provided a system for vascular analysis of a subject, comprising:
(i) a light source for illuminating at least one optically accessible blood vessel of the subject,
(ii) an imager for acquiring a plurality of images showing sequential spatial distribution of moving ~~eiythrocytes~~ erythrocytes in the at least one optically accessible blood vessel,
(iii) an image discriminator determining from the plurality of images showing sequential spatial distribution, a flow pattern of erythrocytes along the blood vessel,
(iv) a flow analyzer analyzing the flow pattern to determine at least one flow

characteristic of erythrocytes along the at least one optically accessible blood vessel of the subject, and

(v) a wall analyzer utilizing the at least one flow characteristic for determining at least one property of the inner surface of the blood vessel.